

9th

Notice of Allowability	Application No.	Applicant(s)	
	10/656,754	HUNG, HUI-CHUAN	
	Examiner	Art Unit	
	Emily Y Chan	2829	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address--

All claims being allowable, PROSECUTION ON THE MERITS IS (OR REMAINS) CLOSED in this application. If not included herewith (or previously mailed), a Notice of Allowance (PTOL-85) or other appropriate communication will be mailed in due course. **THIS NOTICE OF ALLOWABILITY IS NOT A GRANT OF PATENT RIGHTS.** This application is subject to withdrawal from issue at the initiative of the Office or upon petition by the applicant. See 37 CFR 1.313 and MPEP 1308.

1. ☒ This communication is responsive to 9-6-2003.
2. ☒ The allowed claim(s) is/are 1-31.
3. ☐ The drawings filed on _____ are accepted by the Examiner.
4. ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
 - a) ☐ All b) ☐ Some* c) ☐ None of the:
 1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this national stage application from the International Bureau (PCT Rule 17.2(a)).

* Certified copies not received: _____.

Applicant has THREE MONTHS FROM THE "MAILING DATE" of this communication to file a reply complying with the requirements noted below. Failure to timely comply will result in ABANDONMENT of this application.
THIS THREE-MONTH PERIOD IS NOT EXTENDABLE.

5. ☐ A SUBSTITUTE OATH OR DECLARATION must be submitted. Note the attached EXAMINER'S AMENDMENT or NOTICE OF INFORMAL PATENT APPLICATION (PTO-152) which gives reason(s) why the oath or declaration is deficient.
6. ☒ CORRECTED DRAWINGS (as "replacement sheets") must be submitted.
 - (a) ☐ including changes required by the Notice of Draftsperson's Patent Drawing Review (PTO-948) attached
 - 1) ☐ hereto or 2) ☐ to Paper No./Mail Date _____.
 - (b) ☒ including changes required by the attached Examiner's Amendment / Comment or in the Office action of Paper No./Mail Date _____.

Identifying indicia such as the application number (see 37 CFR 1.84(c)) should be written on the drawings in the front (not the back) of each sheet. Replacement sheet(s) should be labeled as such in the header according to 37 CFR 1.121(d).
7. ☐ DEPOSIT OF and/or INFORMATION about the deposit of BIOLOGICAL MATERIAL must be submitted. Note the attached Examiner's comment regarding REQUIREMENT FOR THE DEPOSIT OF BIOLOGICAL MATERIAL.

Attachment(s)

- | | |
|---|--|
| 1. <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 5. <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 2. <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 6. <input type="checkbox"/> Interview Summary (PTO-413),
Paper No./Mail Date _____. |
| 3. <input type="checkbox"/> Information Disclosure Statements (PTO-1449 or PTO/SB/08),
Paper No./Mail Date _____ | 7. <input type="checkbox"/> Examiner's Amendment/Comment |
| 4. <input type="checkbox"/> Examiner's Comment Regarding Requirement for Deposit
of Biological Material. | 8. <input checked="" type="checkbox"/> Examiner's Statement of Reasons for Allowance |
| | 9. <input checked="" type="checkbox"/> Other <u>See Continuation Sheet</u> . |

DETAILED ACTION

Drawings

1. The drawings are objected to under 37 CFR 1.83(a). The drawings must show every feature of the invention specified in the claims. Therefore, the multistage CMOS operational amplifiers recited in claim 3 and the NMOS and PMOS transistors connected in series recited in claim 23 must be shown or the feature(s) canceled from the claim(s). No new matter should be entered.

Corrected drawing sheets in compliance with 37 CFR 1.121(d) are required in reply to the Office action to avoid abandonment of the application. Any amended replacement drawing sheet should include all of the figures appearing on the immediate prior version of the sheet, even if only one figure is being amended. The figure or figure number of an amended drawing should not be labeled as "amended." If a drawing figure is to be canceled, the appropriate figure must be removed from the replacement sheet, and where necessary, the remaining figures must be renumbered and appropriate changes made to the brief description of the several views of the drawings for consistency. Additional replacement sheets may be necessary to show the renumbering of the remaining figures. The replacement sheet(s) should be labeled "Replacement Sheet" in the page header (as per 37 CFR 1.84(c)) so as not to obstruct any portion of the drawing figures. If the changes are not accepted by the examiner, the applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

2. The number "222" mentioned in specification, paragraph (0030) is not shown in Fig 2B.

3. Text label is required for each element shown in Figs 1-

Claim Objections

In claim 1, between "passing the" and "current signal", insert ---induced---

In claim, between "amplifying the" and "current signal", insert ---induced---

In claim 21, line 9, between "side" and "said", insert ---,---

Allowable Subject Matter

4. Claims 1-31 are allowed.

The following is a statement of reasons for the indication of allowable subject matter:

Claims 1-31 are indicated allowable because the prior art in the record do not teach or suggest a method and a SEM (scanning electron microscope) in-situ sample amplification system for carrying out in-situ current amplification of electron beam induced current. Specifically the prior art do not teach or suggest the detail of combination of all the components recited in the independent claims 1, 13 and 21 such as a printed circuit board (PCB) mounted on with both a current signal amplification circuit with a current input side and a current output side and an IC semiconductor device having one conductive interconnect portion connected between a ground potential of the PCB and the current signal input side of the current signal amplification circuit. Dependent claims 2-12, 14-20 and 22-31 are indicated allowable accordingly.

5. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

Koyama ('837) discloses a scanning photo-induced current analyzer (see Fig. 1) with semiconductor device sample (6) to be measured and a current amplifier (10). However, Koyama ('837) fail to disclose a printed circuit board with both the semiconductor device sample (6) and the current amplifier (10) mounted on for beam-induced current to be measured.

Cole, Jr. ('694) discloses a scanning electron microscope (SEM) apparatus (see Fig. 1) for detecting and imaging open-circuit defects in an integrated circuit (16). However, Cole, Jr. ('694) fail to disclose a printed circuit board with the semiconductor device sample (16) and a current amplifier (10) mounted on for carrying out failure analysis of the semiconductor device sample (16).

Yamada et al ('738) disclose scanning electron microscope (SEM) apparatus (see Fig. 7) for inspecting a beam-induced current on a semiconductor device (5) comprising current measuring equipment (8). However, Yamada et al ('738) fail to disclose a printed circuit board with the semiconductor device sample (5) and a current amplifier mounted on for carrying out failure analysis of the semiconductor device sample (5).

Yoshizawa et al ('639) disclose a scanning electron microscope (SEM) apparatus for testing integrated electronic device (see Fig. 1) comprising the sample electronic device (34) and potential measuring circuit (38), which includes amplifiers (38a, 38b). However, Yoshizawa et al ('639) fail to disclose a printed

circuit board with the semiconductor device sample (34) and the amplifiers mounted on for carrying out failure analysis of the semiconductor device sample (34).

Nozoe et al ('634) disclose a method and device for inspecting a semiconductor circuit pattern using an electron beam image (see Fig. 1) comprising a sample board (9) to be inspected and a preamplifier (21). However, Yoshizawa et al ('639) fail to disclose a printed circuit board with the semiconductor device sample (9) and the amplifier (21) mounted on for carrying out failure analysis of the semiconductor device sample (9).


Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Emily Y Chan whose telephone number is 571-272-1956. The examiner can normally be reached on 8:30-5:30.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Michael Tokar can be reached on 571-272-1812. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Ec
9-23-04


DAVID ZARNEKE
PRIMARY EXAMINER
9/25/04